Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

Specialty Amines Complex
BASF Corporation - Geismar Site
Geismar, Ascension Parish, Louisiana
Agency Interest Number: 2049
Activity Number: PER20090004
Proposed Permit Number: 2028-V4

I. APPLICANT

Company:
BASF Corporation - Geismar Site
P.O. Box 457
Geismar, Louisiana 70734-0457

Facility:
Specialty Amines Complex
BASF Corporation
8404 Highway 75
Geismar, Ascension Parish, Louisiana
Front Gate (degrees minutes seconds): 30 11 54 Latitude, 90 59 41 Longitude

II. FACILITY AND CURRENT PERMIT STATUS

BASF Corporation (BASF) operates a chemical manufacturing complex in Geismar, Ascension Parish, Louisiana (the Geismar Site). The Geismar Site has been divided into a number of operating areas for the purpose of obtaining Part 70 Operating Permits: the Chemical Intermediates–North/Diols Complex which includes 1,4-butanediol (1,4-BD), gamma-butyrolactone (GBL), n-methyl pyrrolidone (NMP), tetrahydrofuran (THF), and polytetrahydrofuran (Poly THF) plants; the Acetylene Plant; the Amine Plant; the Aniline I and II Plants; the EO/EG (ethylene oxide/ethylene glycol and gasoline additives) Plant; the Glyoxal Plant; the MDI (methylenebis phenylisocyanate) 1 Plant; the MDI 2 Plant; the PYR/NVP/PVP/PVP-I (vinylpyrrolidone/polyvinylpyrrolidone) Plants; the Polyol Plant and Chlorine/Caustic Unloading; the Surfactants Plant; the TDI (toluene diisocyanate) Plant; and the Utilities Plant.

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The Specialty Amines Complex currently operates under Part 70 Operating Permit No. 22028-V3 issued on December 23, 2005. This Part 70 operating permit addresses the Specialty Amines Complex only.

BASF Corporation - Geismar Site is a designated Part 70 source. Part 70 permits have been issued to all of the operating units within the Geismar Site. These include:

Permit No.	Unit or Source	Date Issued
2028-V3	Specialty Amines Complex	12/23/2005
2039-V1	PYR/NVP/PVP/PVP-1 Plants	12/1/2008
2094-V1	Glyoxal Plant	7/13/2006
2265-V5 AA	Utilities Plant	6/09/2009
2334-V0	MDI 1 Plant	6/05/2006
2353-V1	Diols/Intermediates Complex	12/1/2008
2427-V1	Polyol Plant and Chlorine/Caustic Unloading	7/07/2006
2459-V3	Ethylene Oxide/Ethylene Glycol Plant	3/30/2006
2526-V3	Acetylene Plant	11/19/2008
2558-V1 AA	Aniline 1 and 2 Plants	10/18/2006
2559-V4	MDI 2 Plant	8/03/2007
2564-V3	Boilers No. 3 and No. 6	5/29/2009
2582-V3	Surfactants Plant	3/24/2008
2643-V1	TDI Plant	12/04/2007

In addition, the Geismar Site continues to operate under PSD Permit No. PSD-LA-523(M-1) issued on September 12, 1987 for the Cogeneration Unit No. 1 and PSD Permit No. PSD-LA-613 issued on December 30, 1997 for the Cogeneration Unit No. 2.

Process Description

The BASF - Geismar Site produces acetylene, amine compounds, aniline, 1,4-butanediol, gamma-butyrolactone, ethylene glycol, ethylene oxide, gasoline additives, glyoxal, methylenebis (phenylisocyanate), methylenediphenyl diisocyanate (MDI), N-methyl-2-pyrrolidone, polyols, polytetrahydrofuran, polyvinylpyrrolidone, surfactants, tetrahydrofuran, toluene diisocyanate (TDI), and N-vinyl-2-pyrrolidone.

The Specialty Amines Plant consists of six independent production plants making both finished and intermediate products and the Amines Tank Farm. Amines Plants I, IV, and VI are low pressure production trains and Amines Plants II, III, and V are high pressure trains. Amines Plants IV and V are single product plants; Amines Plant IV produces S-methoxyisopropylamine (S-MOIPA) and the Amines V Plant produces tertiary-butylamine (TBA). Amines Plants I, II, III, and VI are capable of producing a variety of Specialty Amines products. Processes are continuous and the products are purified by distillation. As a multi-product facility, the type and

amount of each product manufactured is dependent on market demand. Different products may be produced as long as there is no increase in production, nor an increase in permitted air emissions.

The Amines Plant VI produces ethoxylated amines (AEOA) by reacting ethylene oxide (EO) with either dimethylamine or monomethylamine. EO is delivered by pipeline from an existing production plant on site. Existing liquefied gas storage is used for receiving the liquefied gas raw materials. The AEOA Plant produces dimethylethanolamine (DMEOA) and methyldiethanolamine (MDEOA) as finishted products. The amount of each product manufactured is dependent on market demand. The finished products are sent to storage tanks and shipped in rail cars and tank trucks to customers.

The Amines Plant Waste Fuel Boiler (WFB), which provides process steam for the Amines Complex, is fueled with offgas from tanks, process wastes from the complex, and natural gas (auxiliary fuel). The liquid fuels are primarily hazardous wastes which can be burned in the boiler under Resource Conservation and Recovery Act (RCRA) provisions for energy recovery. The WFB is regulated under the National Emission Standards for Hazardous Air Pollutants (NESHAP) from Hazardous Waste Combustors (40 CFR 63 Subpart EEE). The WFB is classified as a boiler by the Louisiana Department of Environmental Quality (LDEQ), Waste Permits Division. Heat content of the liquid wastes is well above 5,000 BTU/lb, the minimum set by EPA for waste fuels.

The WFB consists of a three stage combustor section designed for 99.99% destruction efficiency of organic compound feeds while minimizing NO_x emissions. Hot gases exiting the combustor flow through a waste heat boiler, generating up to 7,000 lb/hr of 600 psig steam. Zone One, the first section of this combustor, operates at 1800°F to ensure complete oxidation of the organic compounds. Fuel bound nitrogen produces relatively high levels of NO_x. Zone Two operates under reducing conditions which converts Zone One NO_x back to nitrogen, but also converts CO_2 to CO. Additional combustion air is introduced in Zone Three to oxidize the CO.

The Offgas Muffle Combustor (OMC) achieves greater than 98% destruction and removal efficiency (DRE). The muffle combustor design qualifies as a thermal oxidizer rather than a conventional flare. It relies on reduction/oxidation to ensure destruction of VOCs and OHAPs. This allows the high DRE with low supplemental fuel, thereby limiting NO_x and CO emissions, as compared with a conventional flare.

III. PROPOSED PROJECT/PERMIT INFORMATION

Application

A permit application dated March 4, 2009 was submitted requesting a Part 70 operating permit modification for the Specialty Amines Complex. Additional information dated June 22, 2009;

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July 2, 2009; July 23, 2009; August 7, 2009; August 17, 2009; September 2, 2009; September 4, 2009; and September 10, 2009 was also submitted.

Proposed Permit

In this permit modification, BASF proposes to install and operate a new Methyl Amines (MA) Plant, the Amines Plant VII, within the Specialty Amines Complex (see project description below). The current Specialty Amines Complex Part 70 Operating Permit will be modified by adding new emission sources and modifying existing emission sources associated with the proposed MA Plant. The proposed changes are as follows:

1. To add an additional 8,200 gpm recirculating cooling tower, MA Cooling Tower (Emission Point No. (EPN) AME13).
2. To add a fugitives emission source, MA Process Fugitives (EPN AME14).
3. To add a loading source, MMA/DMA/TMA Loading (EPN AME15).
4. To add a two-stage T-6500/T-6600 Absorber/Desorber recovery system so that MA reactants and products can be recovered from MA process offgas and certain MA tank vents. The recovered materials will be recycled back to the MA Synthesis Reactor.
5. To add a Dewatering Product Recovery System which recovers methanol and recycles it back to the MA Synthesis Reactor.
6. To use the existing 28,000 gallon Pressure Vessel TK-1201 (EPN AME02(a)) as the ammonia feed tank for the MA process. This tank, which is already in ammonia service in the Specialty Amines Unit, is vented to the Amines Waste Destruct System (WDS) for air emissions control.
7. To use the existing 57,000 gallon storage tank, TK-799, which is physically located in BASF's Diols Unit, as the Methanol Feed Tank for the MA process. This tank will remain as part of the Diols Title V permit.
8. To add a 33,000 gallon storage vessel, the MA Plant Mixed Amines Tank D-6840 (EPN AME04(c1)) to store recycled MA products prior to their being recycled to the Synthesis Reactor. This vessel is vented to the T-6500 Absorber Recovery System.
9. To use the existing 30,500 gallon Pressure Vessel TK-1203 (EPN AME02(b)) as the DMA Run Tank for the MA process unit.
10. To use the existing 30,500 gallon Pressure Vessel TK-1205 (EPN AME02(c)) as the TMA Product Tank for the MA Process unit.
11. To use the existing 63,000 gallon storage tank, D-695, which is physically located in BASF's Diols Unit, as the MMA Product Tank for the MA Process unit.
12. To supply the required steam to operate the MA process unit from existing boilers and steam generating units from BASF's Utilities Plant.

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Proposed Project

BASF is proposing to install and operate a new Methylamines (MA) Plant, the Amines Plant VII, within the Specialty Amines Complex. The proposed Amines Plant VII will produce three MA products: Monomethylamine (MMA), Dimethylamine (DMA), and Trimethylamine (TMA). The methanol and ammonia raw materials for MA production are already supplied by the existing Specialty Amines infrastructure. The amount of each MA product that will be manufactured will be dependent on market demand. The finished MA products will be sent to storage tanks and either used as feedstocks for other BASF process units or shipped in railcars and tank trucks to customers.

All offgas streams from the MA process, as well as vents from certain MA process storage vessels, will be sent to a two-stage Absorber/Desorber Recovery System, the T-6500/T-6600 Absorber/Desorber System, so that MA reactants and products can be recovered and recycled back to the MA Synthesis Reactor. The vent from the T-6500 Absorber will vent to the Specialty Amines Waste Destruct System (WDS).

The Specialty Amines WDS consists of three existing emission sources that control VOC emissions through combustion: the Specialty Amines Waste Fuel Boiler (WFB) (EPN AME02), the Specialty Amines Offgas Muffle Combustor (OMC) (EPN AME03), and the Specialty Amines Flare (EPN AME04). The purpose of the WDS is to provide redundancy for vent control in cases where one or more of the three emission control systems go down. The OMC and flare serve as alternate control devices to the WFB. The flare also serves as an alternate control device to the OMC. Three pressurized tanks from the MA process will vent to the WDS (TK1201 Ammonia Tank (EPN AME02(a)), TK-1203 DMA Run Tank (EPN AME02(b)), and TK-1205 TMA Tank (EPN AME02(c)). All three of these tanks are existing pressurized tanks in the Specialty Amines Complex that, in the future, will support the MA process unit. With the exception of these tanks, all other process offgas and tank vents from the MA process, as well as the D-695 MMA Product Tank located at BASF's Diols Unit, will vent to the new T-6500 Vent Recovery System.

All wastewater streams generated in the MA process unit, with the exception of the wastewater purge stream from the T-6500/T-6600 Absorber/Desorber System, will be hard piped to the Dewatering Product Recovery System where they will be joined with the main process flow stream. At this stage, the main process flow stream is separated into a methanol stream that is recovered and recycled back to the Synthesis Reactor, a MMA/DMA fraction that is sent to Section 6400 of the plant for final MMA/DMA product separation, and a wastewater stream that is collected in a new vessel, the MA Plant Wastewater Tank D-6860 (EPN AME04(c2)).

Some of the MA raw materials (bulk methanol) and products (DMA) will be stored at a new, recently permitted facility known as the Geismar Logistics Complex (GLC) (Agency Interest No. 122402). Although the GLC will be located on property contiguous with BASF, it has been

permitted by a third party and operations are controlled by a third party. Consequently, any emissions from GLC that occur as a result of the new MA plant will be permitted as part of GLC's air permit.

Permit No. 2028-V4 will be the modification of Part 70 operating permit 2028-V3 for the Specialty Amines Complex.

Permitted Air Emissions

Estimated emissions in tons per year are as follows:

Pollutant	Before	After	Change
PM_{10}	3.20	4.00	+ 0.80
SO_2	0.15	0.14	- 0.01
NO_X	23.13	21.77	- 1.36
CO	25.50	24.36	- 1.14
VOC*	16.14	25.79	+ 9.65

***VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):**

Pollutant	Before	After	Change
Acrylonitrile	0.016	0.03	+ 0.014
Aniline	0.05	0.07	+ 0.02
Chloroform	0.00	0.26	+ 0.26
Ethylene Oxide	0.014	0.02	+ 0.006
Formaldehyde	0.002	< 0.01	-
n-Hexane	0.08	0.08	-
Methanol	0.35	0.42	+ 0.07
Methyl Ethyl Ketone	0.95	0.96	+ 0.01
Total	**1.46**	**1.84**	**+ 0.38**

Non-VOC TAPs

Pollutant	Before	After	Change
Ammonia	5.98	6.78	+ 0.80
Sulfuric acid	0.003	< 0.01	-
Chlorine	0.12	0.10	- 0.02
Total	**6.10**	**6.88**	**+ 0.78**

Other VOC		23.95	

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IV. REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

Applicability and Exemptions of Selected Subject Items

ID No.	Requirement	Note
Specialty Amines Complex	40 CFR 64 – Compliance Assurance Monitoring (CAM)	**EXEMPT.** The Specialty Amines Complex has emissions limits or standards for which a Part 70 or 71 permit specifies a continuous compliance determination method. [40 CFR 64.2(b)(1)(vi)]
AME02, Specialty Amines Waste Fuel Boiler	40 CFR 63.1217(a), Subpart EEE National Emission Standards for Hazardous Air Pollutants (NESHAP) from Hazardous Waste Combustors	The Permittee shall not discharge or cause combustion gases to be emitted into the atmosphere that contain the items listed in 40 CFR 63.1217(a).
	40 CFR 63.2455(a), Subpart FFFF NESHAP: Miscellaneous Organic Chemical Manufacturing (MON) – Continuous Process Vents	Organic HAP >/= 98% reduction by weight, or OHAP or TOC </= 20 parts per million by volume (ppmv). Subpart FFFF.
	40 CFR 63.2470(a), Subpart FFFF NESHAP: MON – Storage Tanks	HAP >/= 95% reduction by weight, or TOC or organic HAP </= 20 ppmv and hydrogen halides and halogens < 20 ppmv. Subpart FFFF.
AME02(e), Plant I Distillation Operations	LAC 33:III.2115 – Waste Gas Disposal	**DOES NOT APPLY.** Source meets an exemption under LAC 33:III.2147.
	LAC 33:III.2147 – Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations	**EXEMPT.** Existing vent streams route to an existing combustion device to control VOC emissions. [LAC 33:III.2147.A.2.a]
	40 CFR 60 Subpart NNN – Standards of Performance for VOC Emissions from SOCMI Distillation Operations	**DOES NOT APPLY.** Plant I does not produce any of the compounds listed in 40 CFR 60.667. [40 CFR 60.660(a)]

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ID No.	Requirement	Note
(continued) AME02(e), Plant I Distillation Operations	40 CFR 63 Subpart FFFF – NESHAP: Miscellaneous Organic Chemical Manufacturing – Continuous Process Vents	**DOES NOT APPLY.** Plant I does not emit OHAPs. [40 CFR 63.2455]
AME02(f), Plant I Reactor Process	LAC 33:III.2115 – Waste Gas Disposal	**DOES NOT APPLY.** Source meets an exemption under LAC 33:III.2147.
	LAC 33:III.2147 – Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations	**EXEMPT.** Existing vent streams route to an existing combustion device to control VOC emissions. [LAC 33:III.2147.A.2.a]
	40 CFR 60 Subpart RRR – Standards of Performance for VOC Emissions from SOCMI Reactor Processes	**DOES NOT APPLY.** Plant I was constructed prior to 1990 and has not been modified or reconstructed since the time it was constructed, prior to June 29, 1990. [40 CFR 60.700(b)]
	40 CFR 63 Subpart FFFF – NESHAP: Miscellaneous Organic Chemical Manufacturing – Continuous Process Vents	**DOES NOT APPLY.** Plant I does not emit OHAPs. [40 CFR 63.2455]
AME02(g), Plant II Distillation Operations AME02(i), Plant III Distillation Operations	LAC 33:III.2115 – Waste Gas Disposal	**DOES NOT APPLY.** Source meets an exemption under LAC 33:III.2147.
	LAC 33:III.2147 – Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations	**EXEMPT.** Existing vent streams route to an existing combustion device to control VOC emissions. [LAC 33:III.2147.A.2.a]
	40 CFR 60 Subpart NNN – Standards of Performance for VOC Emissions from SOCMI Distillation Operations	Sources are also subject to the more stringent overlapping requirements of 40 CFR 63 Subpart FFFF. Sources are required to comply only with the requirements of 40 CFR 63 Subpart FFFF. [40 CFR 63.2535(h)]

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ID No.	Requirement	Note
AME02(h), Plant II Reactor Process	LAC 33:III.2115 – Waste Gas Disposal	**DOES NOT APPLY.** Source meets an exemption under LAC 33:III.2147.
	LAC 33:III.2147 – Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations	**EXEMPT.** Existing vent streams route to an existing combustion device to control VOC emissions. [LAC 33:III.2147.A.2.a]
	40 CFR 60 Subpart RRR – Standards of Performance for VOC Emissions from SOCMI Reactor Processes	**DOES NOT APPLY.** Plant II was constructed prior to 1990 and has not been modified or reconstructed since the time it was constructed, prior to June 29, 1990. [40 CFR 60.700(b)]
AME02(j), Plant III Reactor Process	LAC 33:III.2115 – Waste Gas Disposal	**DOES NOT APPLY.** Source meets an exemption under LAC 33:III.2147.
	LAC 33:III.2147 – Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations	**EXEMPT.** Existing vent streams route to an existing combustion device to control VOC emissions. [LAC 33:III.2147.A.2.a]
AME02(m), S-MOIPA Distillation	LAC 33:III.2147 – Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations	**DOES NOT APPLY.** S-MOIPA Process units will not produce any compounds listed in LAC 33:III.Chapter 21, Appendix A. [LAC 33:III.2147.B (definition of *process unit*)] Offgases vent through the Amines Waste Fuel Boiler; the Amines Plant Flare serves as an alternate control device.
	LAC 33:III.5109.A – Comprehensive TAP Emission Control Program – Maximum Achievable Control Technology (MACT)	**DOES NOT APPLY.** Source does not emit TAPs.

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ID No.	Requirement	Note
(continued) AME02(m), S-MOIPA Distillation	40 CFR 60 Subpart NNN – Standards of Performance for VOC Emissions from SOCMI Distillation Operations	**DOES NOT APPLY.** The S-MOIPA Plant does not produce any of the compounds listed in 40 CFR 60.667. [40 CFR 60.660(a)]
	40 CFR 63 Subpart FFFF – NESHAP: MON – Continuous Process Vents	**DOES NOT APPLY.** The S-MOIPA Plant does not emit OHAPs. [40 CFR 63.2455]
AME02(n), S-MOIPA Reactors	LAC 33:III.2147 – Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations	**DOES NOT APPLY.** S-MOIPA Process units will not produce any compounds listed in LAC 33:III.Chapter 21, Appendix A. [LAC 33:III.2147.B (definition of *process unit*)] Offgases vent through the Amines Waste Fuel Boiler; the Amines Plant Flare serves as an alternate control device.
	LAC 33:III.5109.A – Comprehensive TAP Emission Control Program – Maximum Achievable Control Technology (MACT)	**DOES NOT APPLY.** Source does not emit TAPs.
	40 CFR 60 Subpart RRR – Standards of Performance for VOC Emissions from SOCMI Reactor Processes	**DOES NOT APPLY.** The S-MOIPA Plant does not produce any of the compounds listed in 40 CFR 60.707. [40 CFR 60.700(a)]
	40 CFR 63 Subpart FFFF – NESHAP: Miscellaneous Organic Chemical Manufacturing – Continuous Process Vents	**DOES NOT APPLY.** The S-MOIPA Plant does not emit OHAPs. [40 CFR 63.2455]
AME02(o), TBA Reactor	LAC 33:III.2115 – Waste Gas Disposal	**DOES NOT APPLY.** Source meets an exemption under LAC 33:III.2147.
	LAC 33:III.2147 – Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations	**EXEMPT.** Existing vent streams route to an existing combustion device to control VOC emissions. [LAC 33:III.2147.A.2.a]

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(continued) AME02(o), TBA Reactor	40 CFR 60 Subpart RRR – Standards of Performance for VOC Emissions from SOCMI Reactor Processes	**DOES NOT APPLY.** The TBA Plant does not produce any chemicals listed in 40 CFR 60.707. [40 CFR 60.700(a)]
	40 CFR 63 Subpart FFFF – NESHAP: MON – Continuous Process Vents	**DOES NOT APPLY.** The TBA Plant does not use OHAPs. [40 CFR 63.2455]
AME03, Specialty Amines Offgas Muffle Combuster	40 CFR 63.2455(a), Subpart FFFF - NESHAP: MON – Continuous Process Vents	Organic HAP >/= 98% reduction by weight, or OHAP or TOC </= 20 parts per million by volume (ppmv). Subpart FFFF.
	40 CFR 63.2470(a), Subpart FFFF - NESHAP: MON – Storage Tanks	HAP >/= 95% reduction by weight, or TOC or organic HAP </= 20 ppmv and hydrogen halides and halogens < 20 ppmv. Subpart FFFF.
AME04, Specialty Amines Flare	40 CFR 63.983(a)(1), Subpart SS - National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or Process – Closed Vent Systems	Closed-vent systems: Ensure that each closed-vent system is designed and operated to collect the regulated material vapors from the emission point, and to route the collected vapors to a control device. Subpart SS.
	40 CFR 63.983(a)(2), Subpart SS - National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or Process – Closed Vent Systems	Closed-vent systems: Operate at all times when emissions are vented to, or collected by, them. Subpart SS.
	40 CFR 63.987(c), Subpart SS - National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or Process – Flare Requirements	Presence of a flame monitored by the regulation's specified method(s) continuously. Use a device (including but not limited to a thermocouple, ultra-violet beam sensor, or infrared sensor) capable of continuously detecting that at least one pilot flame or the flare flame is present. Subpart SS.

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(continued) **AME04**, Specialty Amines Flare	40 CFR 63.2450(e)(2), Subpart FFFF – NESHAP: MON – General Requirements	Meet the requirements of 40 CFR 63.982(b) and the requirements referenced therein, except when complying with 40 CFR 63.2485. Subpart FFFF.
	40 CFR 63.2455(a), Subpart FFFF – NESHAP: MON – Continuous Process Vents	Organic HAP >/= 98% reduction by weight, or OHAP or TOC </= 20 ppmv. Subpart FFFF.
	40 CFR 63.2470(a), Subpart FFFF - NESHAP: MON – Storage Tanks	HAP >/= 95% reduction by weight, or TOC or organic HAP </= 20 ppmv and hydrogen halides and halogens < 20 ppmv. Subpart FFFF.
AME04(c3), MA Plant Distillation	LAC 33:III.2115 – Waste Gas Disposal	**DOES NOT APPLY.** Source meets an exemption under LAC 33:III.2147.
	LAC 33:III.2147.A.2.g – Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations	**EXEMPT.** Source is subject to 40 CFR 60 Subpart NNN. As such, this source is not subject to the provisions of this Subchapter.
	40 CFR 60.662(a), Subpart NNN – Standards of Performance for VOC Emissions from SOCMI Distillation Operations	Total Organic Compounds (less methane and ethane) >/= 98% reduction by weight, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. Subpart NNN
AME04(c4), MA Plant Reactors	LAC 33:III.2147.A.2.g – Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations	**EXEMPT.** Source is subject to 40 CFR 60 Subpart RRR. As such, this source is not subject to the provisions of this Subchapter.

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(continued) AME04(c4), MA Plant Reactors	40 CFR 60.702(a), Subpart RRR – Standards of Performance for VOC Emissions from SOCMI Reactor Processes	Total Organic Compounds (less methane and ethane) >/= 98% reduction by weight, or to a TOC (less methane and ethane) concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen, whichever is less stringent. Subpart RRR.
AME11, AEOA Plant Loading	LAC 33:III.2107.B – VOC Loading	VOC, Total >/= 90% DRE, using a vapor disposal system.
		Equip with a vapor collection system consisting of, at a minimum, a vapor return line which returns all vapors displaced during loading to the VOC dispensing vessel or to a disposal system.
AME12, EO Scrubber	40 CFR 63.2450(e)(1), Subpart FFFF – NESHAP: MON – General Requirements	Meet the requirements of 40 CFR 63.982(c) and the requirements referenced therein, except when complying with 40 CFR 63.2485. Subpart FFFF.
	40 CFR 63.2475(a), Subpart FFFF - NESHAP: MON – Transfer Racks	HAP >/= 98% reduction by weight, or TOC or organic HAP </= 20 ppmv. Subpart FFFF.
AME15, MMA/DMA/TMA Loading	LAC 33:III.2107.B – VOC Loading	VOC, Total >/= 90% DRE, using a vapor disposal system.
		Equip with a vapor collection system consisting of, at a minimum, a vapor return line which returns all vapors displaced during loading to the VOC dispensing vessel or to a disposal system.

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Prevention of Significant Deterioration/Nonattainment Review

The BASF Corporation – Geismar Site is located in Ascension Parish which is designated as non-attainment for ozone. As shown in the Table 1, the project associated emissions increase for NO_x is above its NNSR trigger level of 25 tons per year (TPY). Consequently, a NO_x NNSR 5-year contemporaneous netting analysis was performed. As shown in Table 2, since the net increase in NO_x emissions during the 2007 – 2011 contemporaneous period exceeded the NNSR trigger value of 25 TPY, NNSR applies. Therefore, BASF shall implement lowest achievable emission rate (LAER) for new units and modified existing units where an increase in NO_x emissions will occur as a result of the MA project. However, since no new units are being added and since no existing units are being modified that will have an increase in NO_x emissions, LAER will not apply. Existing Utilities steam generating units will provide the increased steam demand as a result of the MA project, but none of the existing Utility steam generating units are being physically modified. As a result, there is no increase in potential NO_x emissions from the Utilities steam generating units and LAER is not required for these units. In addition, BASF shall use internal offsets at a ratio of 1.3 to 1 from the Utilities No. 3 Boiler (EPN UTL15) which is currently permitted under Part 70 Operating Permit No. 2564-V3 issued on May 29, 2009; BASF installed dry low NO_x burners on the Utilities No. 3 Boiler and banked NO_x credits in a submittal dated March 30, 2007.

Table 1

Pollutant	Baseline Actual Emissions (over 24-month period) (TPY)	Post-Project Potential to Emit (TPY)	Change	NNSR Trigger Value (TPY)
NO_x	51.41	102.72	+ 51.31	25
VOC	6.77	17.09	+ 10.32	25

Table 2

Pollutant	Project Description	Date of Modification	Net NO_x Emissions Increase	NNSR Trigger Value (TPY)
NO_x	AEOA	2nd quarter 2007	25.45	25
	Polyol Expansion	2nd quarter 2008	14.02	
	PTHF Expansion	4th quarter 2008	6.48	
	Methyl Amines Project	2nd quarter 2011	51.31	
	NO_x Change		97.26	

As shown in Table 3, the project associated emissions increases for the PSD pollutants PM_{10}, SO_2, and CO are less than their respective PSD trigger levels. As a result, PSD regulations do not apply.

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Table 3				
Pollutant	**Baseline Actual Emissions (over 24-month period) (TPY)**	**Post-Project Potential to Emit (TPY)**	**Change**	**PSD Trigger Value (TPY)**
PM_{10}	1.48	4.97	+ 3.49	15
SO_2	0.20	0.75	+ 0.55	40
CO	31.06	61.93	+ 30.87	100

Streamlined Equipment Leak Monitoring Program

It is required that the Specialty Amines Complex comply with a streamlined equipment leak monitoring program. Compliance with the streamlined program shall serve to comply with each of the fugitive emission monitoring programs being streamlined.

For Amines Plants I, II, III, and V, fugitive emissions are subject to the requirements of 40 CFR 63 Subpart FFFF (MON), 40 CFR 60 Subpart VV, RCRA Subpart BB, and LAC 33:III.2122. Among these regulations, 40 CFR 63 Subpart FFFF is the overall most stringent program. Therefore, fugitive emissions from these plants shall be monitored as required by 40 CFR 63 Subpart UU, as referenced from 40 CFR 63 Subpart FFFF.

For the Amines Plant IV, fugitive emissions are subject to the requirements of LAC 33:III.2111 and RCRA Subpart BB.

For the Amines Plant VII, fugitive emissions are subject to the requirements of 40 CFR 60 Subpart VV, LAC 33:III.2122, and 40 CFR 63 Subpart H (HON). Among these regulations, 40 CFR 63 Subpart H (HON) is the overall most stringent program. Therefore, fugitive emissions from this plant shall be monitored as required by 40 CFR 63 Subpart H (HON).

Unit or Plant Site	Program Being Streamlined	Stream Applicability	Overall Most Stringent Program
AME05 Amines Plant I (Low Pressure Plant) Amines Plant II (High Pres sure Plant I) Amines Plant III (High Pressure Plant II) Amines Plant V (TBA Plant)	40 CFR 60 Subparts VV	≥ 10% VOC	40 CFR 63 Subpart UU via reference from 40 CFR 63 Subpart FFFF (MON)
	LAC 33:III.2122		
	RCRA Subpart BB		
	40 CFR 63 Subpart UU	≥ 5% OHAP	
AME14 Amines Plant VII (MA Plant)	40 CFR 60 Subparts VV	≥ 10% VOC	40 CFR 63 Subpart H (HON)
	LAC 33:III.2122		
	40 CFR 63 Subpart H (HON)	≥ 5% OHAP	

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Air Quality Analysis

Emissions associated with the proposed modification were reviewed by the Air Quality Assessment Division to ensure compliance with the NAAQS and AAS. LDEQ did not require the applicant to model emissions.

Dispersion Model(s) Used: <None>

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Toxic Air Pollutant Ambient Air Quality Standard or (National Ambient Air Quality Standard {NAAQS})

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the proposed permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the proposed permit.

V. PERMIT SHIELD

BASF Corporation did not request a permit shield in this permit modification.

VI. PERIODIC MONITORING

Periodic monitoring is required for selected emission sources. Refer to the Specific Requirements section of the TEMPO permit for periodic monitoring requirements.

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VII. GLOSSARY

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

Maximum Achievable Control Technology (MACT) – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Hydrogen Sulfide (H_2S) – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

New Source Review (NSR) – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_X) – Compounds whose molecules consist of nitrogen and oxygen.

Organic Compound – Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: $\geq$ 10 tons per year of any toxic air pollutant; $\geq$ 25 tons of total toxic air pollutants; and $\geq$ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10} – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO_2) – An oxide of sulfur.

Sulfuric Acid (H_2SO_4) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.